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1958-59

EIC-PSC-WP 3

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WARNING

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FOREWORD

This report provides estimates of the consumption of petroleum products by the military and paramilitary services of the countries of the Sino-Soviet Bloc for the years 1958 and 1959. Previous reports have covered the years 1950-55 (EIC-PSC-WP 1, 1 April 1956), and 1956-57 (EIC-PSC-WP 2, 1 March 1958). No attempt has been made to revise the estimates contained in these earlier reports.

In the present report the estimates of consumption of petroleum products by the Naval Air Forces of the Sino-Soviet Bloc have been included under Appendix B, Naval Forces. In the previous reports, such estimates have been included under Appendix C, Air Forces. Thus, current estimates for the Naval and Air Forces are not strictly comparable with those given in EIC-PSC-WP 1 and EIC-PSC-WP 2.

The report was prepared under the sponsorship of the Economic Intelligence Committee Subcommittee on Petroleum to meet a designated research deficiency. It is intended that the report serve members of the intelligence community in the preparation of petroleum supply/demand studies concerning the countries of the Sino-Soviet Bloc.

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I. Introduction.

The estimates of consumption of petroleum products by the military forces of the Sino-Soviet Bloc were developed independently by the appropriate intelligence components of the U.S. Departments of the Army, Navy, and Air Force. The particular responsibilities for the preparation of consumption estimates for similar consumers in the Sino-Soviet Bloc are as follows:

Army - Appendix A. Consumption of petroleum products by the ground forces and militarized security forces of the Sino-Soviet Bloc.

Navy - Appendix B. Consumption of petroleum products by the naval forces, afloat and ashore, of the Sino-Soviet Bloc. In addition, estimates of consumption of petroleum products by the naval air forces of the Sino-Soviet Bloc are included in Appendix B.

Air Force - Appendix C. Consumption of petroleum products by the air forces (excluding Naval Air) of the Sino-Soviet Bloc. Included in such consumption estimates are requirements for petroleum products by civil aviation and aircraft engine testing.

The estimates presented in this report were derived from calculations based on probable numbers and types of equipment, the estimated use thereof, and the consumption of petroleum products per unit of time or distance. The margin of error is estimated to be plus or minus 15 percent for any and all of the estimates of consumption.

The term Sino-Soviet Bloc refers to the following countries: the USSR, Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Rumania, Communist China, North Korea, and North Vietnam. The term USSR and European Satellites refers to the USSR, Albania, Bulgaria, Czechoslovakia, East Germany, Poland, and Rumania. The term Communist China and the Asiatic Satellites refers to Communist China, North Korea, and North Vietnam.

II. Estimates of Consumption.*

The estimates of consumption of petroleum products by the Army, Navy, and Air Forces of the countries of the Sino-Soviet Bloc for the years 1958 and 1959 are summarized in Table 1. Estimates of consumption, according to country and to type of product are summarized in Table 2.

The supporting data and methodology for Tables 1 and 2 are shown in the appropriate appendixes.

* The estimates of consumption represent the best available information as of 1 January 1960.

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Table 1

Estimated Consumption of Petroleum Products by the Military Forces of the Sino-Soviet Bloc,
by Force and by Country
1958-59

Thousand Metric Tons												
Consumer	USSR	Albania	Bulgaria	Czecho.	E. Germ.	Hungary	Poland	Rumania	Communist China	North Korea	North Vietnam	Totals
<u>1958</u>												
Ground Forces	1,144.7	b/ 5.2	18.6	46.1	22.6	27.1	27.2	28.7	353.0	11.2	10.0	1,694.5
Naval Forces	c/4,440.7	4.1	16.2	0	19.8	0	44.7	19.7	224.5	4.0	0	4,773.6
Air Forces	8,895.0	5.8	60.6	224.0	29.3	25.8	194.8	62.0	429.7	117.1	0	10,044.1
Total a/	<u>14,480.4</u>	<u>15.1</u>	<u>95.3</u>	<u>270.1</u>	<u>71.7</u>	<u>52.9</u>	<u>266.8</u>	<u>110.5</u>	<u>1,007.2</u>	<u>132.2</u>	<u>10.0</u>	<u>16,512.2</u>
<u>1959</u>												
Ground Forces	1,186.4	b/ 5.9	23.9	46.1	28.0	27.1	40.7	27.4	353.0	11.2	10.0	1,759.7
Naval Forces	c/4,509.4	4.1	18.8	0	19.7	0	47.5	20.4	251.3	5.5	0	4,876.7
Air Forces	8,235.7	6.2	52.1	229.5	42.0	25.9	208.8	60.0	427.5	125.5	0	9,413.4
Total a/	<u>13,931.5</u>	<u>16.3</u>	<u>94.9</u>	<u>275.6</u>	<u>89.7</u>	<u>53.0</u>	<u>297.0</u>	<u>107.8</u>	<u>1,031.8</u>	<u>142.1</u>	<u>10.0</u>	<u>16,049.8</u>

- a. Because of rounding, totals may not always equal the sum of the components.
b. Includes consumption by militarized security forces.
c. Includes consumption by Naval Air.

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Table 2

Estimated Consumption of Petroleum Products by the Military Forces of the Sino-Soviet Bloc,
by Country and by Type of Product
1958-59

		Thousand Metric Tons						
Year	Country	Aviation Gasoline	Motor Gasoline	Jet Fuel	Diesel Fuel	Residual Fuel Oil	Lubricants	Total <u>a/</u>
1958	USSR <u>b/</u>	1,488.1	965.9	8,588.1	1,203.3	2,104.3	130.8	14,480.4
	Albania	0.4	4.5	5.0	4.8	0	0.3	15.1
	Bulgaria	23.0	16.4	34.2	14.8	5.3	1.6	95.3
	Czechoslovakia	49.6	36.7	167.4	13.1	0	3.3	270.1
	East Germany	10.1	16.7	18.0	23.2	2.1	1.7	71.7
	Hungary	13.8	22.3	10.9	4.3	0	1.5	52.9
	Poland	49.7	20.9	154.7	24.9	13.6	2.9	266.8
	Rumania	23.2	25.2	35.8	12.7	11.5	2.1	110.5
	Communist China <u>b/</u>	112.6	331.3	405.4	108.1	28.3	21.6	1,007.2
	North Korea	10.7	13.0	102.6	5.0	0	1.0	132.2
	North Vietnam	0	9.3	0	0.2	0	0.5	10.0
	Total <u>a/</u>	<u>1,781.1</u>	<u>1,462.3</u>	<u>9,522.1</u>	<u>1,414.4</u>	<u>2,165.1</u>	<u>167.3</u>	<u>16,512.2</u>
1959	USSR <u>b/</u>	1,525.7	1,018.6	7,984.0	1,202.2	2,066.2	134.8	13,931.5
	Albania	0.4	4.5	5.5	5.5	0	0.4	16.3
	Bulgaria	12.0	20.5	38.0	16.7	5.9	1.7	94.9
	Czechoslovakia	52.2	36.8	170.1	13.2	0	3.3	275.6
	East Germany	17.6	22.3	22.9	22.8	2.1	2.0	89.7
	Hungary	12.0	22.2	13.0	4.3	0	1.5	53.0
	Poland	51.8	33.9	162.0	32.2	13.6	3.6	297.0
	Rumania	22.8	23.2	34.4	14.0	11.5	2.0	107.8
	Communist China <u>b/</u>	114.2	329.9	427.2	110.9	28.3	21.4	1,031.8
	North Korea	9.5	13.1	112.1	6.5	0	1.0	142.1
	North Vietnam	0	9.3	0	0.2	0	0.5	10.0
	Total <u>a/</u>	<u>1,818.2</u>	<u>1,534.4</u>	<u>8,969.0</u>	<u>1,428.6</u>	<u>2,127.6</u>	<u>172.1</u>	<u>16,049.8</u>

a. Because of rounding, totals may not always equal the sum of the components.

b. Includes consumption by forces outside national boundaries.

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APPENDIX A

CONSUMPTION OF PETROLEUM PRODUCTS BY THE GROUND FORCES OF THE SINO-SOVIET BLOCA. USSR and the European Satellites1. Assumptions.

a. Ground units of the Soviet Army were at authorized Table of Organization and Equipment (TO/E) strengths in tanks, assault guns, and other vehicles during 1958-59.

b. The performance of any given type of vehicle is uniform, regardless of role. For example, the consumption rate for a truck used to transport heavy cargo is the same as the rate achieved in transporting troops.

c. All tractors/tracked prime movers in Soviet units burn diesel fuel (although a few may use gasoline).

d. The over-all vehicle strength of the militarized security forces approximates one average truck per 25 troops.

e. Vehicles employed in transport use are allocated gasoline for 7,200 miles of annual operation. Vehicles employed for non-transport use, i.e., primarily combat, are allocated gasoline for 2,100 miles of annual operation.

f. In general, vehicles in the Soviet militarized security forces are considered to be transport as opposed to combat. An exception to this is within the Interior Troops wherein only 25 percent are estimated transport vehicles.

g. Consumption of petroleum products by the European Satellite ground forces was based on estimated vehicle and unit strengths. Satellite security forces were allocated one average truck per 20 troops.

2. Methodology.

a. Annual gasoline consumption by the Soviet Army ground forces was calculated on the basis of the estimated total number of authorized gasoline burning vehicles in divisional and non-divisional units, military schools, and depot installations. In all instances, vehicles were divided into "transport" and "other" vehicles. Transport vehicles were allocated gasoline for 7,200 miles annually; "other" vehicles were allocated 2,100 miles. Such mileage was obtained from the most recent Soviet documents and reports. Consumption was calculated at the rate of eight miles per gallon.

b. Information available on Soviet tank and assault gun training indicates that most of the armor assigned to troops is kept in storage for most of the year. It is believed that about 10 percent of the tanks and assault guns in units is used throughout the year for training and that another 10 percent is added from the tank park for summer field training. The remaining 80 percent is used during relatively short term maneuvers and in short moves to and from rail stations. The following rates of operation were used:

10 percent, year-round training	400 hours
10 percent, summer training	150 hours
80 percent, maneuver training	50 hours

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These rates were applied to the tanks and assault guns considered as in the hands of Soviet troops. Fifty percent of the armor in reserve storage was allocated fuel for 8 hours of maintenance operation per year. Consumption was calculated at the rate of 10.3 gallons per hour for light and medium tanks and assault guns and 20.7 gallons per hour for heavy tanks and assault guns. Fuel consumption for other tracked vehicles was allocated on the basis of 800 miles per vehicle per year, and calculated at the rate of 1 mile per gallon. Tank recovery vehicles, which are converted tanks, were allocated 50 hours annually per vehicle.

c. Gasoline consumption by the Soviet militarized security forces was calculated in the basis of 7,200 miles per truck. For the Internal Troops, however, only 25 percent of the vehicles were considered within the "transport" category. The remaining vehicles of these troops were allocated 2,100 miles. The Interior Troops were also allocated 2,500 tons of diesel fuel annually for artillery, tractor, and tank consumption.

d. Available intelligence does not permit the development of valid estimates for petroleum products consumed in space heating, cleaning, and lighting.

3. The Estimates.

The consumption estimates for the Soviet and European Satellite ground forces and militarized security forces are shown in Tables A-1 through A-9.

B. Communist China and the Asiatic Satellites

1. Methodology.

The following factors were used in estimating consumption:

a. Communist China

Consumption by Gasoline-Powered Vehicles

<u>Vehicle</u>	<u>Number in Operation</u>	<u>Gallons Consumed Per Day</u>
Truck, 6x6	57,200	3.4
Truck, 4x2	34,000	2.1
Truck, $\frac{1}{4}$ ton	5,700	2.0
Tank, Light, T-70	170	.75
Armored Car	100	.35

Consumption by Diesel-Powered Vehicles

Tank, T-34	2,600	4.0
Tank, JS-2	60	4.0
Assault Gun, SU 100	800	4.0
Assault Gun, JSU 122	100	4.0
Assault Gun, JSU 152	100	4.0
Tracked prime mover	600	6.0

b. North Korea

Consumption by Gasoline-Powered Vehicles

<u>Vehicle</u>	<u>Number in Operation</u>	<u>Gallons Consumed Per Day</u>
Truck, 6x6, GHQ	1,121	2.0
Truck, 6x6, Units	7,514	1.0
Truck, $\frac{1}{4}$ ton	423	.75

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Consumption by Diesel-Powered Vehicles

<u>Vehicle</u>	<u>Number in Operation</u>	<u>Gallons Consumed Per Day</u>
Tank, T-34	300	1.0
Assault Gun, SU 76	209	1.0
Assault Gun, SU 85	50	1.0

c. North Vietnam

Number of gasoline powered vehicles of all types, 3,000; average consumption 3 gallons per day.

Number of diesel powered T-34 tanks, 40; consumption per day 4 gallons; number M-24 tanks, 20; consumption, 2 gallons per day.

2. The Estimates

The consumption estimates for the ground forces of Communist China and the Asiatic Satellites are given in Table A-10.

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Table A-1

Estimated Consumption of Petroleum Products by the Ground Forces
of the Soviet Army
1958-59

					Metric Tons
	Location of Units	Motor Gasoline	Diesel Fuel	Lubricants	Total
1958	USSR	714,599	191,743	45,317	951,659
	East Germany	109,444	38,843	7,414	155,701
	Hungary	17,335	6,060	1,169	24,564
	Poland	8,334	3,872	610	12,816
	Total	<u>849,712</u>	<u>240,518</u>	<u>54,510</u>	<u>1,144,740</u>
1959	USSR	750,599	202,112	47,636	1,000,347
	East Germany	109,444	38,843	7,414	155,701
	Hungary	12,424	4,273	834	17,531
	Poland	8,334	3,872	610	12,816
	Total	<u>880,801</u>	<u>249,100</u>	<u>56,494</u>	<u>1,186,395</u>

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Table A-2

Estimated Consumption of Petroleum Products by the Ground Forces
of the Soviet Army, by Type of Unit
1958

Type of Unit	Motor Gasoline	Diesel Fuel	Lubricants	Metric Tons Total
<u>Line Divisions</u>				
85 Rifle	190,630	33,210	11,192	235,032
67 Mecz/Mtr Rifle	229,517	88,324	15,892	333,733
23 Tank	72,581	46,207	5,939	124,727
Total	<u>492,728</u>	<u>167,741</u>	<u>33,023</u>	<u>693,492</u>
<u>Non-Divisional</u>				
Corps Troops	7,123	1,077	410	8,610
Army Troops	115,846	27,999	7,192	151,037
GHQ	168,368	33,470	10,092	211,930
Total	<u>291,337</u>	<u>62,546</u>	<u>17,694</u>	<u>371,577</u>
<u>Miscellaneous</u>	65,647	10,231	3,793	79,671
Total Soviet Army Ground Forces	<u>849,712</u>	<u>240,518</u>	<u>54,510</u>	<u>1,144,740</u>

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Table A-3

Estimated Consumption of Petroleum Products by the Ground Forces
of the Soviet Army, by Type of Unit
1959

Type of Unit	Motor Gasoline	Diesel Fuel	Lubricants	Metric Tons Total
<u>Line Divisions</u>				
73 Rifle	163,713	28,522	9,612	201,852
79 Mccz/Mtr Rifle	266,990	101,822	18,440	387,252
23 Tank	72,581	46,207	5,939	124,727
Total	<u>503,289</u>	<u>176,551</u>	<u>33,991</u>	<u>713,831</u>
<u>Non-Divisional</u>				
Corps Troops	7,123	1,077	410	8,610
Army Troops	115,846	27,999	7,192	151,037
GHQ	168,368	33,470	10,092	211,930
Total	<u>291,337</u>	<u>62,546</u>	<u>17,694</u>	<u>371,577</u>
<u>Miscellaneous</u>	86,175	10,003	4,809	100,987
Total Soviet Army Ground Forces	<u>880,601</u>	<u>249,100</u>	<u>56,494</u>	<u>1,186,395</u>

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Table A-4

Estimated Consumption of Motor Gasoline by the Ground Forces
of the Soviet Army, by Type of Unit
1950

Type of Unit	Transport Vehicles		Other Vehicles		Total	
	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)
<u>Line Divisions</u>						
85 Rifle	38,505	96,263	117,095	94,367	155,400	190,630
67 Mech/Mtr Rifle	53,342	133,322	120,271	96,195	173,613	229,517
23 Tank	20,217	50,497	27,600	22,084	47,817	72,581
Total	<u>112,064</u>	<u>280,082</u>	<u>265,766</u>	<u>212,646</u>	<u>377,830</u>	<u>492,728</u>
<u>Non-Divisional</u>						
Corps Troops	1,320	3,300	4,770	3,823	6,098	7,123
Army Troops	26,351	65,870	62,460	49,968	88,811	115,846
GHQ	41,254	103,135	31,541	65,233	122,795	168,368
Total	<u>68,925</u>	<u>172,313</u>	<u>148,779</u>	<u>119,024</u>	<u>217,704</u>	<u>291,337</u>
<u>Miscellaneous*</u>	N.A.	N.A.	N.A.	N.A.	N.A.	65,647
Total Soviet Army Ground Forces	<u>180,989</u>	<u>452,395</u>	<u>414,545</u>	<u>331,670</u>	<u>595,534</u>	<u>849,712</u>

* Radars, motor boats, outboard motors.

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Table A-5

Estimated Consumption of Motor Gasoline by the Ground Forces
of the Soviet Army, by Type of Unit
1959

Type of Unit	Transport Vehicles		Other Vehicles		Total	
	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)
<u>Line Divisions</u>						
73 Rifle	33,069	82,673	101,251	81,045	134,320	163,718
79 Mecz/Mtr Rifle	62,254	155,596	139,277	111,394	201,531	266,990
23 Tank	20,217	50,497	27,600	22,004	47,817	72,581
Total	<u>115,540</u>	<u>288,766</u>	<u>268,128</u>	<u>214,523</u>	<u>383,668</u>	<u>503,289</u>
<u>Non-Divisional</u>						
Corps Troops	1,320	3,300	4,770	3,023	6,090	7,123
Army Troops	26,351	65,070	62,460	49,968	88,811	115,046
GHQ	41,254	103,135	81,541	65,233	122,795	168,368
Total	<u>68,925</u>	<u>171,505</u>	<u>148,771</u>	<u>118,224</u>	<u>217,704</u>	<u>291,337</u>
Miscellaneous*	N.A.	N.A.	N.A.	N.A.	N.A.	66,175
Total Soviet Army Ground Forces	<u>184,465</u>	<u>460,271</u>	<u>416,907</u>	<u>332,747</u>	<u>601,372</u>	<u>794,626</u>

* Radars, motor boats, outboard motors.

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Table A-6

Estimated Consumption of Diesel Fuel by the Ground Forces
of the Soviet Army, by Type of Unit
1950

Type of Unit	Medium Tanks & Aslt Guns*		Heavy Tanks & Aslt Guns		TPM, Tank Retrievers**		Total	
	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)
<u>Line Divisions</u>								
05 Rifle	10,625	32,657	0	0	340	553	10,965	33,210
67 Mecz/Mtr Rifle	16,676	51,276	4,947	31,048	2,753	6,000	24,376	88,324
23 Tank	6,785	21,227	3,331	20,783	1,817	4,197	11,903	46,207
Total	<u>34,086</u>	<u>105,160</u>	<u>8,328</u>	<u>51,831</u>	<u>4,910</u>	<u>10,750</u>	<u>47,324</u>	<u>167,741</u>
<u>Non-Divisional</u>								
Corps Troops	0	0	0	0	424	1,077	424	1,077
Army Troops	2,132	6,020	0	0	8,455	21,379	10,587	27,999
GHQ	2,159	6,594	0	0	10,543	26,776	12,702	33,470
Total	<u>4,291</u>	<u>13,314</u>	<u>0</u>	<u>0</u>	<u>19,422</u>	<u>49,232</u>	<u>23,713</u>	<u>62,546</u>
<u>Miscellaneous***</u>	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	10,231
Total Soviet Army Ground Forces	<u>38,377</u>	<u>118,474</u>	<u>8,328</u>	<u>51,831</u>	<u>24,332</u>	<u>59,982</u>	<u>71,037</u>	<u>240,518</u>

* Includes light tanks

** Includes mine clearing tanks, dozers, tracked APC's, etc.

*** Maintenance checks of tanks and assault guns in storage.

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Table A-7

Estimated Consumption of Diesel Fuel by the Ground Forces
of the Soviet Army, by Type of Unit
1959

Type of Unit	Medium Tanks & Aslt Guns*		Heavy Tanks & Aslt Guns		TBM, Tank Retrievers**		Total	
	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric tons)	No. of Vehicles (Units)	Fuel Consumed (Metric Tons)
<u>Line Divisions</u>								
73 Rifle	9,125	20,047	0	0	292	475	9,417	20,522
79 Mecz/Mtr Rifle	19,602	60,606	5,249	32,941	3,721	8,275	28,652	101,822
23 Tank	6,705	21,227	3,301	20,783	1,817	4,197	11,903	46,207
Total	<u>35,592</u>	<u>109,880</u>	<u>8,630</u>	<u>53,724</u>	<u>5,830</u>	<u>12,947</u>	<u>50,052</u>	<u>176,551</u>
<u>Non-Divisional</u>								
Corps Troops	0	0	0	0	424	1,077	424	1,077
Army Troops	2,132	6,620	0	0	8,455	21,319	10,587	27,999
GHQ	2,159	6,694	0	0	10,543	26,776	12,702	33,470
Total	<u>4,291</u>	<u>13,314</u>	<u>0</u>	<u>0</u>	<u>19,422</u>	<u>49,232</u>	<u>23,713</u>	<u>62,546</u>
<u>Miscellaneous***</u>	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	10,000
Total Soviet Army Ground Forces	<u>39,883</u>	<u>123,194</u>	<u>8,630</u>	<u>53,724</u>	<u>25,252</u>	<u>62,179</u>	<u>73,765</u>	<u>249,107</u>

* Includes light tanks

** Includes mine clearing tanks, dozers, tracked APE's, etc.

*** Maintenance checks of tanks and assault guns in storage.

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Table A-8

Estimated Consumption of Petroleum Products by the Militarized Security Forces
of the USSR, by Type of Unit
1950-59

Type of Unit	Number of Trucks (Units)	Consumption (Metric tons)			Total
		Motor Gasoline	Diesel Fuel	Lubricants	
Border Troops	7,200	18,000	-	900	18,900
Interior Troops	7,700	9,433	2,500	597	12,530
Convoy Troops	960	2,400	-	120	2,520
Signal Troops	1,000	2,500	-	125	2,625
Total	<u>16,860</u>	<u>32,333</u>	<u>2,500</u>	<u>1,742</u>	<u>36,575</u>

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Table A-9

Estimated Consumption of Petroleum Products by the Ground Forces of the
European Satellites, by Country and by Type of Product
1950-59

					Metric Tons
Year	Country	Motor Gasoline	Diesel Fuel	Lubricants	Total
1950	Albania	4,200	800	250	5,250
	Bulgaria	13,500	4,200	885	18,585
	Czechoslovakia	32,630	11,250	2,200	46,080
	East Germany	14,470	7,050	1,080	22,600
	Hungary	21,000	4,000	1,290	27,090
	Poland	18,730	7,215	1,300	27,245
	Rumania	22,320	5,000	1,365	28,685
	Total	127,650	39,515	8,370	175,535
1959	Albania	4,200	1,440	280	5,920
	Bulgaria	18,360	4,400	1,140	23,900
	Czechoslovakia	32,630	11,300	2,200	46,130
	East Germany	19,965	5,665	1,330	27,960
	Hungary	21,000	4,000	1,290	27,090
	Poland	22,530	10,200	1,940	40,670
	Rumania	20,450	5,650	1,305	27,405
	Total	145,235	43,655	9,405	199,075

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Table A-10

Estimated Consumption of Petroleum Products by the Ground Forces of Communist China and the Asiatic Satellites,
by Country and by Type of Product
1958-59

Country	Metric Tons			
	Motor Gasoline	Diesel Fuel	Lubricants	Total
<u>1958</u>				
Communist China*	314,000	22,000	17,000	353,000
North Korea	10,000	650	530	11,180
North Vietnam	9,300	235	480	10,015
Total	<u>333,300</u>	<u>22,885</u>	<u>18,010</u>	<u>374,195</u>
<u>1959 (est)</u>				
Communist China	314,000	22,000	17,000	353,000
North Korea	10,000	650	530	11,180
North Vietnam	9,300	235	480	10,015
Total	<u>333,300</u>	<u>22,885</u>	<u>18,010</u>	<u>374,195</u>

* Figures include requirements for CCF in Korea during early part of 1958.

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APPENDIX B

CONSUMPTION OF PETROLEUM PRODUCTS BY NAVAL FORCES OF THE SINO-SOVIET BLOC

A. Methodology.

Estimates of consumption of petroleum products by the naval forces of the Sino-Soviet Bloc were developed by the following methodology:

1. Surface and Submarine Forces.

a. The Order of Battle utilized for each of the years 1958 and 1959 was taken from ONI-30-5/D(A), Strength and Disposition of Foreign Navies.

b. The consumption of fuel according to each type of vessel was estimated on the basis of best available intelligence supplemented by USN experience.

c. The consumption of lubricants was estimated at 1 percent of the residual fuel oil consumed, 2 percent of the diesel fuel consumed, and 5 percent of the gasoline consumed.

2. Naval Air Forces.

a. The Order of Battle utilized for each of the years 1958 and 1959 was taken from AIS 2/2.

b. The estimated average number of flying hours according to type of aircraft were taken from AIS 2-26/2. The consumption of fuel according to type of aircraft was based on aircraft performance estimates published by ATIC.

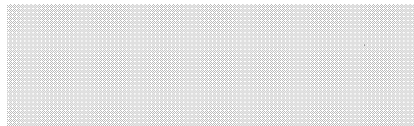
c. The consumption of lubricants was estimated at 1.62 percent of the consumption of fuel by piston engine aircraft and 0.163 percent of the consumption of fuel by jet engine aircraft.

3. Shore Facilities (including naval air facilities).

Estimates of fuel consumption ashore were derived on the basis of per-man requirements, supplemented by estimated assigned vehicle consumption where possible.

B. The Estimates.

Estimates of the consumption of petroleum products by the naval forces of the Sino-Soviet Bloc are shown in Tables B-1 and B-2/



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Table B-1

Estimated Consumption of Petroleum Products by the Naval Forces* of the USSR and the European Satellites,
by Country and by Type of Product
1958-59

Year	Country							Metric Tons
		Aviation Gasoline Grades 100/95	Motor Gasoline	Jet Fuel	Diesel Fuel	Residual Fuel Oil	Lubricants	Total
1958	USSR							
	Baltic Fleet	5,840	17,500	487,800	194,592	625,868	11,912	1,343,512
	Northern Fleet	4,380	8,000	218,700	318,192	327,888	10,915	888,075
	Pacific Fleet	8,760	16,000	334,200	270,408	783,984	14,730	1,428,082
	Black Sea Fleet	2,920	9,000	224,100	150,888	366,528	7,584	781,020
	Total	<u>21,900</u>	<u>50,500</u>	<u>1,284,800</u>	<u>934,080</u>	<u>2,104,268</u>	<u>45,141</u>	<u>4,440,689</u>
	Albania	0	100	0	3,912	0	83	4,095
	Bulgaria	0	800	0	9,768	5,316	297	16,181
	East Germany	0	1,500	0	15,804	2,076	396	19,776
	Poland	0	1,100	12,025	17,376	13,622	559	44,682
	Rumania	0	1,000	0	6,898	11,520	308	19,726
	Total	<u>0</u>	<u>4,500</u>	<u>12,025</u>	<u>53,758</u>	<u>32,534</u>	<u>1,643</u>	<u>104,460</u>
	Grand Total	<u>21,900</u>	<u>55,000</u>	<u>1,296,825</u>	<u>987,838</u>	<u>2,136,802</u>	<u>46,784</u>	<u>4,545,149</u>

S.E.C.R.E.T

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Table B-1

Estimated Consumption of Petroleum Products by the Naval Forces* of the USSR and the European Satellites,
by Country and by Type of Product
1958-59
(Continued)

Year	Country							Metric Tons
		Aviation Gasoline Grades 100/95	Motor Gasoline	Jet Fuel	Diesel Fuel	Residual Fuel Oil	Lubricants	Total
1959	USSR							
	Baltic Fleet	5,840	17,500	494,000	144,672	531,444	9,983	1,203,439
	Northern Fleet	4,380	8,000	311,000	331,836	387,432	11,488	1,054,136
	Pacific Fleet	7,300	16,000	325,200	277,836	742,464	14,429	1,383,229
	Black Sea Fleet	2,920	9,000	283,100	160,560	404,620	8,217	868,617
	Total	<u>20,440</u>	<u>50,500</u>	<u>1,413,300</u>	<u>914,904</u>	<u>2,066,160</u>	<u>44,117</u>	<u>4,509,421</u>
	Albania	0	100	0	3,912	0	78	4,090
	Bulgaria	0	800	0	11,808	5,904	295	18,807
	East Germany	0	1,500	0	15,804	2,076	336	19,716
	Poland	0	1,100	12,025	20,208	13,632	560	47,525
	Rumania	0	1,000	0	7,520	11,520	267	20,407
	Total	<u>0</u>	<u>4,500</u>	<u>12,025</u>	<u>59,352</u>	<u>33,132</u>	<u>1,536</u>	<u>110,545</u>
	Grand Total	<u>20,440</u>	<u>55,000</u>	<u>1,425,325</u>	<u>974,256</u>	<u>2,099,292</u>	<u>45,653</u>	<u>4,619,966</u>

* Including consumption by Naval Air.

S.E.C.R.E.T

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Table B-2

Estimated Consumption of Petroleum Products by the Naval Forces* of Communist China and North Korea
by Country and by Type of Product
1958-59

								Metric Tons
Year	Country	Aviation Gasoline Grades 100/95	Motor Gasoline	Jet Fuel	Diesel Fuel	Residual Fuel Oil	Lubricants	Total
1958	Communist China	945	5,000	107,182	80,724	28,204	2,357	224,492
	North Korea	0	600	0	3,270	0	92	3,962
	Total	<u>945</u>	<u>5,600</u>	<u>107,182</u>	<u>83,994</u>	<u>28,204</u>	<u>2,449</u>	<u>228,454</u>
1959	Communist China	945	5,000	130,733	84,144	28,204	2,204	251,310
	North Korea	0	600	0	4,776	0	95	5,471
	Total	<u>945</u>	<u>5,600</u>	<u>130,733</u>	<u>88,920</u>	<u>28,204</u>	<u>2,299</u>	<u>256,781</u>

* Including consumption by Naval Air.

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APPENDIX C

CONSUMPTION OF PETROLEUM PRODUCTS BY THE AIR FORCES* OF THE SINO-SOVIET BLOCA. Assumptions and methodology.1. Aircraft fuels and lubricants.

a. Estimates of the number of aircraft operating within the respective countries for the years 1958 and 1959 were taken from AIS 2/2. Estimated average flying hours according to type of aircraft were based on data given in AIS 2-26/2. The consumption of fuel according to type of aircraft was determined from aircraft performance estimates published by ATIC. The consumption of lubricants was estimated at 1.62 percent of the consumption of fuel by piston engine aircraft and 0.163 percent of the consumption of fuel by jet engine aircraft.

b. Training aircraft includes the aircraft within the training establishment and the paramilitary organizations. Current National Intelligence Studies (NIS) were consulted to determine the number of pilots in training and the annual flight hours for the training syllabus.

c. Aircraft under Civil Aviation include those assigned to the Civil Air Fleet, Polar Aviation, and incidental aircraft assigned to several ministries. Data in AIS 2/2 and AIS 2-26/2 were used to derive the number of aircraft and the monthly flying hours.

d. Time factors for engine run-in and aviation industry testing of aircraft under research and development, including modifications and overhauls performed by MAP, were established. Such factors provided the basis for development of estimates of consumption of petroleum products by MAP Aircraft (testing).

2. Diesel fuel and motor gasoline.

Estimates of the consumption of diesel fuel and motor gasoline by the Air Forces of the Sino-Soviet Bloc (excluding consumption by Naval Air) were based on the vehicle park assigned to the regimental units and the daily fuel consumption estimated in various publications.

B. The Estimates.

Estimates of the consumption of petroleum products by the Air Forces of the Sino-Soviet Bloc in 1958-1959 reflect slight decreases in the Air Order of Battle, a decrease in flying activity, when compared with similar bases used to derive such estimates for 1956-1957. In addition, derivation of the present estimates has involved the use of a more detailed methodology. For these reasons then, current estimates for certain of the countries show a slight decline in consumption of petroleum products by the Air Forces.

Estimates of the consumption of petroleum products by the Air Forces of the Sino-Soviet Bloc, excluding Naval Air, for the years 1958 and 1959 are given in Tables C-1 through C-6.

* Excluding consumption of petroleum products by Naval Air.

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Table C-1

Estimated Consumption of Petroleum Products by the Air Forces of the USSR,
according to Description and Location of Unit and by Type of Product
1958

								Metric Tons
Description of & Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
USSR		660,890	0	5,076,200	47,243	20,644	20,121	6,625,098
*Soviet Air Forces								
Training	105,137	50,705	40,318	303,383	1,680	720	3,673	505,616
Civil Aviation	16,262	302,016	267,430	396,172	7,735	3,300	5,802	990,797
MWP Aircraft (testing)	1,700	1,520	0	311,475	1,306	594	560	317,235
Total	<u>1,138,230</u>		<u>307,748</u>	<u>6,887,230</u>	<u>58,044</u>	<u>25,338</u>	<u>30,156</u>	<u>8,446,746</u>
East Germany								
Soviet Air Forces	0	16,512	0	193,634	3,808	1,664	503	216,201
Hungary								
Soviet Air Forces	0	734	0	81,207	1,190	520	144	83,795
Poland								
Soviet Air Forces	0	1,460	0	110,669	2,023	804	204	115,240
Romania								
Soviet Air Forces	0	1,460	0	30,508	595	260	74	32,985
Total Soviet Air Forces	<u>1,158,412</u>		<u>307,748</u>	<u>7,303,328</u>	<u>65,660</u>	<u>28,666</u>	<u>31,161</u>	<u>8,894,975</u>

* Excludes consumption by Naval Air.

Table C-2

Estimated Consumption of Petroleum Products by the Air Forces of the European Satellites
by Country, by Unit, and by Type of Product
1950

Description of & Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Metric Tons Total
	Grade 100	Grade 95	Less than Grade 95					
<u>Albania</u>								
Air Force	0	436	0	5,005	230	100	15	5,802
<u>Bulgaria</u>								
Air Force	0	7,026	0	34,199	1,904	632	170	44,131
Training	0	5,419	0,266	0	208	0	222	14,115
Civil Aviation	0	2,204	0	0	0	0	37	2,321
Total	0	14,729	0,266	34,199	2,112	632	429	60,567
<u>Czechoslovakia</u>								
Air Force	0	15,867	0	120,530	3,213	1,450	466	149,462
Training	0	7,080	15,723	16,872	609	287	397	40,968
Civil Aviation	0	11,035	0	21,962	230	104	215	33,554
Total	0	33,922	15,723	157,372	4,050	1,649	1,078	224,004
<u>East Germany</u>								
Air Force	0	0	0	18,000	714	312	29	19,055
Civil Aviation	0	10,067	0	0	0	0	163	10,230
Total	0	10,067	0	18,000	714	312	192	29,285
<u>Hungary</u>								
Air Force	0	0	0	10,909	476	200	18	11,611
Training	0	810	3,606	0	52	124	73	4,753
Civil Aviation	0	9,254	0	0	0	0	150	9,404
Total	0	10,072	3,606	10,909	528	332	241	25,768

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Table C-2

Estimated Consumption of Petroleum Products by the Air Forces of the European Satellites
by Country, by Unit, and by Type of Product
1950
(Continued)

Description of & Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Metric Tons, Total
	Grade 100	Grade 95	Less than Grade 95					
<u>Poland</u>								
*Air Forces	0	13,153	0	133,460	476	200	430	147,735
Training	0	7,270	20,716	9,239	490	0	471	30,194
Civil Aviation	0	0,519	0	0	130	104	130	0,899
Total	<u>0</u>	<u>20,942</u>	<u>20,716</u>	<u>142,707</u>	<u>1,112</u>	<u>312</u>	<u>1,039</u>	<u>194,820</u>
<u>Rumania</u>								
Air Force	0	9,057	0	35,752	1,666	720	210	40,221
Training	0	1,654	0,137	0	05	0	159	10,035
Civil Aviation	0	3,562	0	0	119	52	50	3,791
Total	<u>0</u>	<u>15,073</u>	<u>0,137</u>	<u>35,752</u>	<u>1,870</u>	<u>760</u>	<u>435</u>	<u>62,047</u>
Total European Satellites	<u>0</u>	<u>113,241</u>	<u>56,520</u>	<u>413,944</u>	<u>10,634</u>	<u>4,525</u>	<u>3,429</u>	<u>602,301</u>

* Excludes consumption by Naval Air.

S E C R E T

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Table C-3

Estimated Consumption of Petroleum Products by the Air Forces of Communist China and North Korea
by Country, by Unit, and by Type of Product
1958

Description of & Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Metric Tons Total
	Grade 100	Grade 95	Less than Grade 95					
<u>China</u>								
*Air Forces		62,699	0	279,036	12,019	5,252	1,451	361,257
Training	0	14,003	13,699	18,365	160	90	493	47,710
Civil Aviation	0	20,328	0	0	68	37	329	20,782
Total		<u>97,910</u>	<u>13,699</u>	<u>298,201</u>	<u>12,207</u>	<u>5,379</u>	<u>2,273</u>	<u>429,749</u>
<u>North Korea</u>								
Air Force	0	6,671	0	99,804	2,380	1,040	270	110,165
Training	0	2,497	1,521	2,612	33	0	70	6,933
Total	<u>0</u>	<u>9,168</u>	<u>1,521</u>	<u>102,616</u>	<u>2,413</u>	<u>1,040</u>	<u>340</u>	<u>117,098</u>
Total Communist China and Asiatic Satellite	<u>107,070</u>		<u>15,220</u>	<u>400,817</u>	<u>14,700</u>	<u>6,419</u>	<u>2,613</u>	<u>545,847</u>

* Excludes consumption by Naval Air.

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Table C-4

Estimated Consumption of Petroleum Products by the Air Forces of the USSR
according to Description and Location of Unit
and by Type of Product
1959

	Aviation Gasoline							Metric Tons
Description of & Location of Units	Grade 100	Grade 95	Less than Grade 95	Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
USSR								
*Soviet Air Forces	625,053		0	5,101,793	69,377	30,316	17,537	5,044,076
Training	91,221	85,569	60,836	276,023	2,467	1,057	4,397	530,570
Civil Aviation	16,262	397,654	200,315	508,134	7,370	3,224	10,779	1,143,746
MAP Aircraft (testing)	1,476	2,593	0	283,304	2,036	673	526	290,890
Total	1,220,028		269,151	6,169,334	61,258	35,470	33,241	7,809,282
East Germany								
Soviet Air Forces	0	12,874	0	196,400	3,213	1,404	626	214,517
Hungary								
Soviet Air Forces	0	930	0	81,377	1,680	406	147	84,028
Poland								
Soviet Air Forces	0	1,460	0	123,556	1,705	810	225	127,044
Rumania								
Soviet Air Forces	-	-	-	None	-	-	-	-
Total Soviet Air Forces	1,236,100		269,151	6,570,667	67,336	36,170	34,239	8,235,671

* Excludes consumption by Naval Air.

Table C-5

Estimated Consumption of Petroleum Products by the Air Forces of the European Satellites
by Country, by Unit, and by Type of Product
1959

Metric Tons								
Description of & Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
<u>Albania</u>								
Air Force	0	436	0	5,455	230	100	7	6,244
<u>Bulgaria</u>								
Air Force	0	3,904	0	30,017	1,190	540	125	43,776
Training	0	2,609	3,134	0	154	0	85	5,462
Civil Aviation	0	2,055	0	0	0	0	46	2,911
Total	<u>0</u>	<u>6,568</u>	<u>3,134</u>	<u>30,017</u>	<u>1,344</u>	<u>540</u>	<u>256</u>	<u>52,149</u>
<u>Czechoslovakia</u>								
Air Force	0	14,791	0	129,669	2,975	1,350	451	149,636
Training	0	4,110	7,633	10,452	460	235	220	31,610
Civil Aviation	0	25,702	0	21,952	716	337	416	49,123
Total	<u>0</u>	<u>44,603</u>	<u>7,633</u>	<u>170,083</u>	<u>4,151</u>	<u>1,923</u>	<u>1,087</u>	<u>229,892</u>
<u>East Germany</u>								
Air Force	0	1,460	0	22,909	0	370	61	25,800
Civil Aviation	0	10,100	0	0	0	0	261	15,361
Total	<u>0</u>	<u>11,560</u>	<u>0</u>	<u>22,909</u>	<u>0</u>	<u>370</u>	<u>322</u>	<u>41,161</u>

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Table C-5

Estimated Consumption of Petroleum Products by the Air Forces of the European Satellites
by Country, by Unit, and by Type of Product
1959
(Continued)

Metric Tons								
Description of & Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
<u>Hungary</u>								
Air Force	0	734	0	13,000	357	162	33	14,294
Training	0	1,007	4,537	0	61	147	199	5,851
Civil Aviation	0	5,692	0	0	0	0	92	5,784
Total	<u>0</u>	<u>7,433</u>	<u>4,537</u>	<u>13,000</u>	<u>418</u>	<u>309</u>	<u>224</u>	<u>25,929</u>
<u>Poland</u>								
*Air Force	0	9,362	0	140,206	3,570	1,620	379	155,157
Training	0	7,600	21,670	9,660	524	0	490	39,960
Civil Aviation	0	13,166	0	0	205	137	213	13,721
Total	<u>0</u>	<u>30,076</u>	<u>21,670</u>	<u>149,954</u>	<u>4,299</u>	<u>1,757</u>	<u>1,082</u>	<u>200,046</u>
<u>Rumania</u>								
Air Force	0	0,470	0	34,352	1,547	702	193	45,272
Training	0	1,553	7,639	0	80	0	149	9,421
Civil Aviation	0	5,150	0	0	79	0	83	5,312
Total	<u>0</u>	<u>15,101</u>	<u>7,639</u>	<u>34,352</u>	<u>1,706</u>	<u>702</u>	<u>425</u>	<u>60,005</u>
Total European Satellites	<u>0</u>	<u>124,163</u>	<u>44,621</u>	<u>433,770</u>	<u>13,002</u>	<u>5,717</u>	<u>3,403</u>	<u>624,664</u>

* Excludes consumption by Naval Air.

Table C-6

Estimated Consumption of Petroleum Products by the Air Forces of Communist China and North Korea
by Country, by Unit, and by Type of Product
1959

								Metric Tons
Description of & Location of Units	Aviation Gasoline			Jet Fuel	Motor Gasoline	Diesel Fuel	Lubricants	Total
	Grade 100	Grade 95	Less than Grade 95					
<u>China</u>								
*Air Forces		51,511	0	277,590	10,591	4,528	1,337	355,057
Training	0	15,196	13,900	18,752	124	90	504	48,714
Civil Aviation	0	22,457	0	0	97	41	354	22,959
Total		<u>99,264</u>	<u>13,900</u>	<u>296,442</u>	<u>10,872</u>	<u>4,759</u>	<u>2,205</u>	<u>427,530</u>
<u>North Korea</u>								
Air Force	0	3,937	0	169,876	2,499	1,092	242	116,046
Training	0	2,540	1,613	2,903	36	0	74	7,354
Civil Aviation	0	1,277	0	0	0	0	21	1,298
Total	0	<u>7,754</u>	<u>1,613</u>	<u>172,779</u>	<u>2,535</u>	<u>1,092</u>	<u>337</u>	<u>125,498</u>
Total Communist China and Asiatic Satellite		<u>107,018</u>	<u>15,513</u>	<u>469,221</u>	<u>13,407</u>	<u>5,851</u>	<u>2,542</u>	<u>553,028</u>

* Excludes consumption by Naval Air.